

IN THE CLAIMS:

1. (Currently Amended) An undulated-wall honeycomb structure having a plurality of cell passages defining a cell passage direction, which are mutually parallel in the cell passage channel direction;

wherein intersection portions between walls partitioning defining said cell passages are formed so as to maintain have a predetermined pitch at in cross-sections perpendicular to said cell passages and positioned systematically, are located in a pattern and wherein the wall face portions of said walls excluding said intersection portions are formed so as to have an undulated shape in both the cell passage direction and the a cross-sectional direction perpendicular to said cell passage direction.

2. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein, regarding for each of said cell passages, passage, the wall face portions of an opposing pair of said walls are each formed so as to each have an undulated shape, such that recessions and protrusions on one wall face portion and recessions and protrusions on the other wall face portion are

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positioned with the protrusions of each facing one another and the recessions of each facing one another, or with the protrusions and the recessions facing one another.

3. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein said wall face portions formed with having an undulated shape and flat wall face portions formed with a flat shape are formed in an intermingled fashion.

4. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, regarding wherein for each of said cell passages, passage, at least one of said plurality of walls making up forming said cell passage is formed with has an undulated shape.

5. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein the undulated deformation whereby said walls are formed with wherein said undulated-wall honeycomb structure has a center portion surrounded by an outer portion when viewed in cross-section defined substantially perpendicular to said cell passage direction, and each wall face portion of a cell

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cell passage direction, and each wall face portion of a cell  
passage having an undulated shape comprises a wall face portion  
having an undulated deformation that is greater at the said outer  
portion than of the honeycomb structure than at the said center  
portion of the honeycomb structure.

6. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein the amplitude of the undulated deformation of walls are formed with having an undulated shape is at least 150% of the thickness of said walls or more.

7. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein a line connecting the highest portions of the protrusions and/or the lowest portions of the recessions of the wall face portions formed with having an undulated shape in said cell passage direction repeats a pattern of turning in the vertical direction substantially perpendicular to said cell passage direction on said wall face.

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8. (Currently Amended) An undulated-wall honeycomb structure according to Claim 3, wherein cell passages formed by said wall face portions of said walls ~~formed in having~~ an undulated shape and cell passages formed defined by said wall face portions of said walls ~~formed in having~~ a flat shape appear and coexist in a discontinuous manner.

9. (Currently Amended) An undulated-wall honeycomb structure according to Claim 3, comprising a cell passage area A formed with a generally circular cross-section from the center, and a cell passage area B formed with a generally ring-shaped form at the outer side of said cell passage area A: wherein:  
said undulated-wall honeycomb structure has a center portion surrounded by an outer portion when viewed in cross-section defined substantially perpendicular to said cell passage direction,  
wherein said cell passage area A contains said center portion comprises cell passages formed defined by said wall face portions of said walls formed having an undulated shape; shape,

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~~and wherein said cell passage area B said outer portion comprises cell passages formed defined by said wall face portions of said walls formed having a flat shape; shape,~~

~~and wherein the thickness of the walls of the cell passages within said cell passage area B outer portion is greater than the thickness of the walls of the cell passages within said cell passage area A, center portion, and also wherein~~  
~~the thickness thereof of the walls increases in stages from the inner circumference center portion toward the outer portion portion or only increases in stages near the a boundary between area B and area A the center portion and the outer portion.~~

10. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, wherein the comprising a material thereof is one or a composition of a plurality of the following group of ceramic materials: selected from the group consisting of cordierite, alumina, mullite, lithium aluminum silicate, aluminum titanate, titania, zirconia, silicone nitride, aluminum nitride, and silicon carbide; or one of the following group: selected from the group consisting of stainless steel, and aluminum alloy; or

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selected from the group consisting of an adsorbent of either activated charcoal or charcoal, silica gel or gel, and zeolite.

11. (Currently Amended) An undulated-wall honeycomb structure according to Claim 10, wherein the porosity of the material used is between 45% to 80%.

12. (Currently Amended) A fine particle removing filter using the undulated-wall honeycomb structure according to Claim 11, comprising filtering layers of walls partitioning the cell passages, by plugging wherein one end of particular cell passages of said undulated-wall honeycomb structure structure and also plugging the other end of the remaining cell passages are plugged.

13. (Original) A fine particle removing filter according to Claim 12 wherein the surface roughness of the undulated walls of said undulated-wall honeycomb structure is 10% or more in Valley Level.

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14. (Currently Amended) A fine particle removing filter according to Claim 12 wherein the wall thickness of said undulated-wall honeycomb structure is around about 0.2 to 1.2 mm.

15. (Currently Amended) A fine particle removing filter according to Claim 12 wherein the cell density of said undulated-wall honeycomb structure is around about 50 to 600 cpsi (cells per square centimeter).

16. (Currently Amended) An undulated-wall honeycomb structure according to Claim 1, which is used as an exhaust gas purification catalyst carrier for vehicles, and carries further comprising a housing containing said honeycomb structure, and a catalyst located on the surface on-of the cell wall face and/or in micropores within the walls of said honeycomb structure.

17. (Currently Amended) An undulated-wall honeycomb structure according to Claim 16-16, wherein the wall thickness is around about 0.01 to 0.12 mm.

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18. (Currently Amended) An undulated-wall honeycomb structure according to Claim 16-16, wherein the cell density is around about 200 to 3000 cpsi (cells per square inch).

19. (Currently Amended) An exhaust gas purification catalytic converter, using including the undulated-wall honeycomb structure according to Claim 16.

20. (Currently Amended) An exhaust gas purification catalytic converter according to Claim 19, wherein the catalyst component is at least one of or a compound of a plurality of the following group: selected from the group consisting of a three way catalyst, an oxide catalyst, an NOx reducing catalyst, a sulfide catalyst, a volatile organic gas VOC (Gaseous Organic Compounds), and a dioxins decomposing-removing catalyst.

21. (Currently Amended) An exhaust gas purification catalytic converter system comprising a plurality of the exhaust gas purification catalytic converter converters according to Claim 19, and a plurality of catalytic converters wherein catalyst is 19,

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- carried on a normal flat-wall honeycomb structure, said catalytic converters being serially alternately arrayed.

22. (Currently Amended) An exhaust gas purification catalytic converter system, wherein the comprising an exhaust gas purification catalytic converter of the comprising an undulated-wall honeycomb structure having a gas flow direction and a plurality of cell passages which are mutually parallel in channel direction; wherein the gas flow direction, wherein:

intersection portions between walls partitioning said cell passages are formed so as to maintain located at a predetermined pitch at cross-sections perpendicular to said cell passages and positioned systematically, are located in a pattern, and wherein the wall face portions of said walls excluding said intersection portions are formed so as to have an undulated shape in both the cell passage gas flow direction and the a cross-sectional direction perpendicular to said cell passage gas flow direction, is placed to and

said catalytic converter is located on the upstream side of the an exhaust gas source, and the fine particle removing filter

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according to Claim 12 or a fine particle removing filter comprising a normal flat-wall honeycomb structure is placed to on the downstream side of the such exhaust gas source.

23. (Original) An exhaust gas purification catalytic converter system according to Claim 22, wherein each of said fine particle removing filters is a readily-exchangeable cartridge type.

24. (Currently Amended) An exhaust gas purification system using comprising the undulated-wall honeycomb structure according to Claim 16, for capturing fine particle substances in the an exhaust gas, said exhaust gas purification system comprising: means for charging said undulated-wall honeycomb structure and for electrically capturing said fine particle substances.

25. (Currently Amended) An exhaust gas purification system using comprising the undulated-wall honeycomb structure according to Claim 16, for capturing fine particle substances in the an exhaust gas, said exhaust gas purification system using comprising

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non-thermal equilibrium plasma (non-thermal plasma) or microwave discharge plasma.

26. (Currently Amended) A fuel tank evaporation system using including the undulated-wall honeycomb structure according to Claim 16, for suppressing external leakage of volatile components of fuel.

27. (Currently Amended) An exhaust gas purification system according to Claim 24, wherein said undulated-wall honeycomb structure is a readily exchangeable cartridge type configuration.

28. (Currently Amended) A fuel cell system component using comprising the undulated-wall honeycomb structure according to Claim 16.

29. (Currently Amended) A sandwich panel using comprising the undulated-wall honeycomb structure according to Claim 16.

30. (Currently Amended) A method for manufacturing an undulated-wall honeycomb structure, comprising:

providing an extrusion forming nozzle comprising a back plate having adjacent through holes defining channels having a channel direction, wherein at least one of said through holes has a first material flow resistance differing from a second material flow resistance of another of said through holes; and

forming an undulating wall honeycomb structure having a plurality of cell passages that are mutually substantially parallel in the channel direction,

wherein intersection portions between walls defining said cell passages have a predetermined pitch in cross-sections perpendicular to said cell passages and are located in a pattern and wherein wall face portions of said walls excluding said intersection portions have an undulated shape in both the cell passage direction and a cross-sectional direction perpendicular to said cell passage direction wherein a back plate having adjacent through holes with differing material flow resistance is used as a nozzle material for extrusion forming.

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31. (Currently Amended) A method for manufacturing an undulated-wall honeycomb structure according to Claim 31, 30, wherein said back plate changes in has a thickness that varies from the outer portion of the back plate toward the center portion of the back plate.

32. (Currently Amended) A method for manufacturing an undulated-wall honeycomb structure according to Claim 31, wherein said back plate has first through holes A and second through holes B with differing hole diameters.holes, wherein said first through holes have diameters differing from diameters of said second through holes.

33. (Cancelled)

34. (Currently Amended) An exhaust gas purification system according to Claim 25, wherein said undulated-wall honeycomb structure is a readily exchangeable cartridge type configuration.

35. (Cancelled)